

**Amendment to the claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of claims:**

1           1.       (Currently Amended) A method for generating a spot for use in halftoning,  
2 comprising:  
3           defining a spot function that combines two functions selected to provide a  
4 predetermined spot shape for use in a halftone cell; and  
5           scaling the spot function using a parameterized spot radius scaling function that varies  
6 according to a value of a first and second spot function ordinate and a shape changing scaling  
7 function.

1           2.       (Original)     The method of claim 1 wherein the two functions allow non-  
2 separable changes in spot shape.

1           3.       (Original)     The method of claim 1 wherein the spot function is described  
2 by:

3                     
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4           where  $f_1(x, y)$  and  $f_2(x, y)$  are functions of  $x$  and/or  $y$ , and  $S(p, x, y)$  is called the scaling  
5 function and wherein if  $S$  is a function of radius  $r = \sqrt{x^2 + y^2}$ , then  $S$  may be written  
6 equivalently  $S(p, r)$ .

1           4.       (Original)     The method of claim 1 wherein the spot function is described  
2   by:

3                               
$$f(x,y) = \frac{1}{2} \left( \cos(\pi x / p_x) + \frac{1}{S(p,r)} \cos(\pi y / p_y) \right)$$

4   where x and y are the first and second spot function ordinates,  $p_x$  scales ordinate x,  $p_y$  scales  
5   ordinate y, p is a spot shape parameter for controlling the shape of the spot,  $S(p,r)$  is a scaling  
6   function, and r is the radius of the spot.

1           5.       (Original)     The method of claim 4 wherein the scaling function,  $S(p,r)$ , is  
2   described by:

3                               
$$S(p,r) = 1 + \frac{1}{p_m \sqrt{2\pi}} \exp \left( - \frac{(r/\sqrt{2} - 1/2)^2}{2p^2} \right),$$

4   where  $p_m$  sets a maximum ellipticity of the spot.

1           6.       (Original)     The method of claim 1 wherein the spot function comprises  
2   angular orientation defined by:

3                               
$$f(x,y) = \frac{1}{2} \left( \cos(\pi(x+y)/p_x) + \frac{1}{S(p,r)} \cos(\pi(x-y)/p_y) \right).$$

1           7.       (Currently Amended) A printing system, comprising:  
2           a control unit for receiving a print file and processing the print file for printing;  
3           a print head for conveying a print job according to the print file; and  
4           a device for generating a spot for use in halftoning wherein the halftoning reproduces  
5           an image defined by the print file using the print head, the device defines a spot function that  
6           combines two functions selected to provide a predetermined spot shape for use in a halftone  
7           cell and scales the spot function using a parameterized spot radius scaling function that varies  
8           according to a value of a first and second spot function ordinate and a shape changing scaling  
9           function.

1           8.       (Original)     The printing system of claim 7 wherein the two functions allow  
2           non-separable changes in spot shape.

1           9.       (Original)     The printing system of claim 7 wherein the spot function used  
2           by the device is described by:

3                     
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4           where  $f_1(x, y)$  and  $f_2(x, y)$  are functions of  $x$  and/or  $y$ , and  $S(p, x, y)$  is called the scaling  
5           function and wherein if  $S$  is a function of radius  $r = \sqrt{x^2 + y^2}$ , then  $S$  may be written  
6           equivalently  $S(p, r)$ .

1           10.     (Original)     The printing system of claim 7 wherein the spot function used  
2     by the device is described by:

3                                 
$$f(x, y) = \frac{1}{2} \left( \cos(\pi x / p_x) + \frac{1}{S(p, r)} \cos(\pi y / p_y) \right)$$

4     where x and y are the first and second spot function ordinates,  $p_x$  scales ordinate x,  $p_y$  scales  
5     ordinate y, p is a spot shape parameter for controlling the shape of the spot, S(p,r) is a scaling  
6     function, and r is the radius of the spot.

1           11.     (Original)     The printing system of claim 10 wherein the scaling function,  
2     S(p,r), is described by:

3                                 
$$S(p, r) = 1 + \frac{1}{p_m \sqrt{2\pi}} \exp \left( - \frac{(r / \sqrt{2} - 1/2)^2}{2p^2} \right),$$

4     where  $p_m$  sets a maximum ellipticity of the spot

1           12.     (Original)     The printing system of claim 7 wherein the spot function used  
2     by the device comprises angular orientation defined by:

3                                 
$$f(x, y) = \frac{1}{2} \left( \cos(\pi(x + y) / p_x) + \frac{1}{S(p, r)} \cos(\pi(x - y) / p_y) \right).$$

1           13.     (Original)     The printing system of claim 7 wherein the device is a  
2     hardware card disposed between the control unit and the print head.

1           14.     (Original)     The printing system of claim 7 wherein the device is a  
2     hardware card disposed within the control unit.

1           15.     (Original)     The printing system of claim 7 further comprising a print  
2     program of a computer for generating the print file, wherein the device comprises screening  
3     software loaded into the computer, the computer executing the screening software to perform  
4     the halftoning.

1           16.     (Original)     The printing system of claim 7 wherein the device comprises  
2     software loaded into the control unit, wherein the control unit executes the software to  
3     perform the halftoning.

1           17.     (Currently Amended) An article of manufacture comprising a program  
2     storage medium readable by a computer, the medium tangibly embodying one or more  
3     programs of instructions executable by the computer to perform a method for halftoning an  
4     image, the method comprising:  
5                 defining a spot function that combines two functions selected to provide a  
6     predetermined spot shape for use in a halftone cell; and  
7                 scaling the spot function using a parameterized spot radius scaling function that varies  
8     according to a value of a first and second spot function ordinate and a shape changing scaling  
9     function.

1           18.     (Original)     The article of manufacture of claim 17 wherein the two  
2     functions allow non-separable changes in spot shape.

1           19.     (Original)     The article of manufacture of claim 17 wherein the spot  
2     function is described by:

3                     
$$f(x, y) = f_1(x, y) + f_2(x, y) / S(p, x, y),$$

4     where  $f_1(x, y)$  and  $f_2(x, y)$  are functions of  $x$  and/or  $y$ , and  $S(p, x, y)$  is called the scaling  
5     function and wherein if  $S$  is a function of radius  $r = \sqrt{x^2 + y^2}$ , then  $S$  may be written  
6     equivalently  $S(p, r)$ .

1           20.     (Original)     The article of manufacture of claim 17 wherein the spot  
2     function is described by:

3                     
$$f(x, y) = \frac{1}{2} \left( \cos(\pi x / p_x) + \frac{1}{S(p, r)} \cos(\pi y / p_y) \right)$$

4     where  $x$  and  $y$  are the first and second spot function ordinates,  $p_x$  scales ordinate  $x$ ,  $p_y$  scales  
5     ordinate  $y$ ,  $p$  is a spot shape parameter for controlling the shape of the spot,  $S(p, r)$  is a scaling  
6     function, and  $r$  is the radius of the spot.

1           21.     (Original)     The article of manufacture of claim 20 wherein the scaling  
2     function,  $S(p, r)$ , is described by:

3                     
$$S(p, r) = 1 + \frac{1}{p_m \sqrt{2\pi}} \exp \left( - \frac{(r / \sqrt{2} - 1/2)^2}{2p^2} \right),$$

4     where  $p_m$  sets a maximum ellipticity of the spot.

1           22.     (Original)     The article of manufacture of claim 17 wherein the spot  
2     function comprises angular orientation defined by:

3                                 
$$f(x, y) = \frac{1}{2} \left( \cos(\pi(x + y) / p_x) + \frac{1}{S(p, r)} \cos(\pi(x - y) / p_y) \right).$$

1           23.     (Currently Amended) A printing system, comprising:  
2             means for receiving a print file and processing the print file for printing;  
3             means for conveying a print job according to the print file; and  
4             means for generating a spot for use in halftoning wherein the halftoning reproduces  
5     an image defined by the print file using the print head, the means for generating a spot  
6     defines a spot function that combines two functions selected to provide a predetermined spot  
7     shape for use in a halftone cell and scales the spot function using a parameterized spot radius  
8     scaling function that varies according to a value of a first and second spot function ordinate  
9     and a shape changing scaling function.